Abstract

An instrument and method for imaging and localizing of electrical activities in a biological system, comprising a plurality of sensors for detecting signals over a part of a surface of the biological system, a data acquisition unit for collecting the signals, a positioning device for determining positions of the sensors, a procedure for determining geometry information of the biological system, an electrical source model incorporating physical and physiological properties of the biological system, an estimator for determining the parameters of the electrical source model, and a unit for displaying the reconstructed excitation sequence and electrical source distribution in the three dimension space of the biological system and over time, together with imaging results from other modalities including magnetic resonance imaging and computer tomography.